

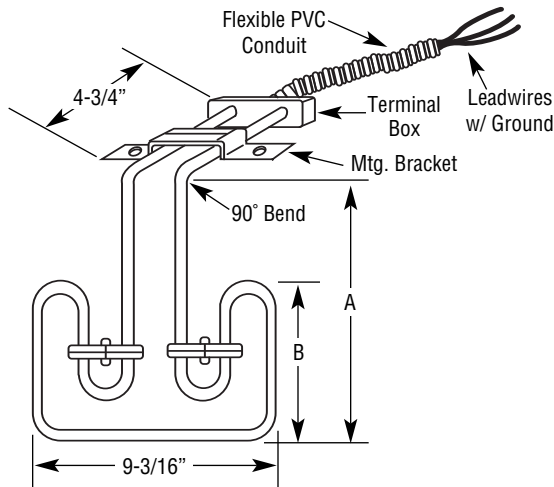
Chromalox®

Installation, Operation and Maintenance Instructions

SERVICE REFERENCE

DIVISION 4	SECTION PTHT
SALES REFERENCE (Supersedes PD439-1)	PD439-2
161-562284-001	
DATE	JULY, 1998

Titanium Over-the-Side Immersion Heater Type PTHT



Specifications

Model Number	Volts (Single Phase)	kW	W/In ²	Dimensions (In.)		Approx. Wt. (Lbs.)
				A	B	
PTHT-101 PTHT-102	120 240	1	19	13	6	6
PTHT-202 PTHT-204	240 480	2	19	21	12	7
PTHT-302 PTHT-304	240 480	3	21	26	17	8
PTHT-402 PTHT-404	240 480	4	21	31	22	9
PTHT-602 PTHT-604	240 480	6	22	42	33	12
PTHT-802 PTHT-804	240 480	8	22	53	44	14

GENERAL

DANGER: This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electrical Code. Failure to comply can result in explosion or fire.

Chromalox type PTHT over-the-side immersion heaters are especially suited for use in plating tanks, rinse tanks and other aqueous solutions.

WARNING: It is the responsibility of the purchaser of the heater to make the ultimate choice of sheath material based upon his knowledge of the chemical composition of the solution, and controls which he maintains on the process. Chromalox cannot warrant any electric immersion heater

against failure by sheath corrosion if such failure is the result of operating beyond our control.

- Heater construction characteristics.
 - High quality resistance wire held in place by compacted magnesium oxide in titanium sheath.
 - Medium watt densities.
 - Vapor tight junction box with 3' PVC flexible conduit with ground wire.
 - Spacer bar prevents elements from touching tank wall.
 - Flat profile consumes little tank work area.

WARNING: Users should install adequate controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are essential. Although the safety of the installation is the responsibility of the user, Chromalox will be glad to make equipment recommendations.

INSTALLATION

WARNING: Hazard of Electrical Shock. Disconnect all power before installing heater.

- Before installing the type PTHT heater, inspect it thoroughly for possible damage which may have occurred during shipment. Also check to insure that the line voltage is the same as that stamped on the heater nameplate.
- Where work will pass over or near equipment, additional protection such as a metal guard may be needed.
- To resist buoyancy and to keep the heater in close profile with tank wall, a metal bracket with two mounting holes has been provided.

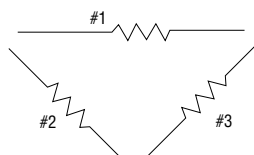
- WARNING: Heated section** (See Figure 1, "B" Dimension) must be totally immersed at all times. If the heater is not properly submerged, it will overheat and damage the heating element and create a possible fire hazard due to excessive sheath temperatures.
- Heater must not be operated in sludge.
- DANGER: Hazard of Fire.** Since these heaters are capable of developing high temperatures, extreme care should be taken to:
 - Avoid installing heaters in an atmosphere containing combustible gases and vapors.
 - Avoid contact between heater and combustible materials.
 - Keep combustible materials far enough away to be free of the effects of high temperatures.

WIRING

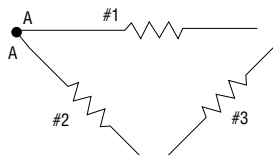
WARNING: Hazard of Electric Shock. Any installation involving electric heaters must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

1. Electrical wiring to heater must be installed in accordance with the National Electrical Code or local electrical codes by a qualified person.

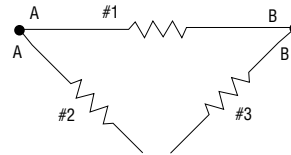
2. When element wattages are not equal, heaters must not be connected in series.
3. For single phase, apply power across two (2) black leads. Green wire (ground) must be properly grounded.
4. For balanced 3 phase loads, three (3) heaters of the same voltage and wattage ratings are required. A six-step guide to wiring connections for 3 phase delta:



Step 2: Assign designations 1, 2, 3 to heaters.

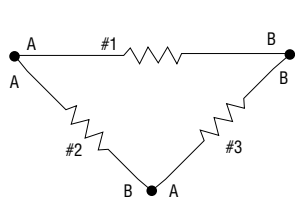


Step 3: Connect leadwire "A" of Heater #1 to leadwire "A" of Heater #2.

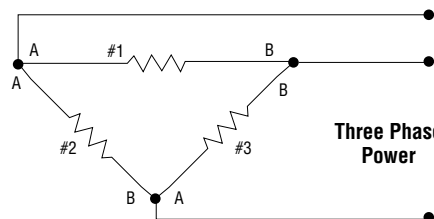


Step 4: Connect leadwire "B" of Heater #1 to leadwire "B" of Heater #3.

Step 1: Designate one black leadwire as "A" and one black leadwire as "B".



Step 5: Connect leadwire "B" of Heater #2 to leadwire "A" of Heater #3.



Step 6: Designate one 3 phase power line to each of the three connections.

Note: Green wire (ground) of each heater must be properly grounded.

OPERATION

1. Do not operate heater at voltages in excess of that stamped on the heater since excess voltage will shorten heater life.
2. **WARNING:** Always maintain a minimum of 2" of solution above the heated portion of the element (See Figure 1, "B" Dimension) to prevent exposure of the effective heated length.

If the heater is not properly submerged, it may overheat and shorten heater life and create a fire hazard.

3. In an electroplating operation the heaters are not under any circumstances to be placed between the electrodes and the work.

MAINTENANCE

WARNING: Hazard of Severe Shock. Disconnect all power to heater before servicing or replacing heaters.

1. Heaters should be checked periodically for coatings and corrosion, and cleaned if necessary.

2. Tank should be checked regularly for sediment around the end of heater as this sediment can act as an insulation and shorten heater life.

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at http://www.chromalox.com/customer-service/policies/terms_of_sale.aspx.

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